

*Please provide the following information, and submit to the NOAA DM Plan Repository.*

**Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

**1. General Description of Data to be Managed****1.1. Name of the Data, data collection Project, or data-producing Program:**

2012 USGS Lidar: Juneau (AK)

**1.2. Summary description of the data:**

This task order is for planning, acquisition, processing, and derivative products of LiDAR data to be collected for Juneau, Alaska. LiDAR data, and derivative products produced in compliance with this task order are part of the data to be obtained under Contract number G10PC00025, Order number G12PD00481. Specifications listed below are based on the U.S. Geological Survey National Geospatial Program Base LiDAR Specification, Version 13.

**1.3. Is this a one-time data collection, or an ongoing series of measurements?**

One-time data collection

**1.4. Actual or planned temporal coverage of the data:**

2012-04-25 to 2012-06-22

**1.5. Actual or planned geographic coverage of the data:**

W: -134.84996, E: -134.26305, N: 58.54946, S: 58.21335

**1.6. Type(s) of data:**

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*  
las

**1.7. Data collection method(s):**

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

**1.8. If data are from a NOAA Observing System of Record, indicate name of system:****1.8.1. If data are from another observing system, please specify:**

**2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

NOAA Office for Coastal Management (NOAA/OCM)

**2.4. E-mail address:**

coastal.info@noaa.gov

**2.5. Phone number:**

(843) 740-1202

**3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:****3.2. Title:**

Data Steward

**4. Resources**

*Programs must identify resources within their own budget for managing the data they produce.*

**4.1. Have resources for management of these data been identified?****4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):****5. Data Lineage and Quality**

*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

**5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible**

*(describe or provide URL of description):*

Process Steps:

- 2012-10-01 00:00:00 - The LiDAR data was captured using AeroMetric's twin-engine fixed wing aircraft equipped with an Optech LiDAR system. The LiDAR systems includes a differential GPS unit and inertial measurement system to provide

superior accuracy. Acquisition parameters: 1. Flight Height - 1500 meters or lower above mean terrain 2. Swath Width - 28 degrees 3. Sidelap - 55% 4. Nominal Post Spacing - 1.0 meters GPS and IMU processing parameters 1. Maximum baseline length - Not greater than 100 kilometers. 2. Number of base stations during LiDAR collection - A minimum of 1. 3. Maximum positional RMS of trajectory during LiDAR collection - 0.10 meters 4. IMU processing monitored for consistency and smoothness - Yes. Point Cloud Processing: 1. Horizontal Datum - NAD83 2. Horizontal Coordinates - Universal Transverse Mercator, Zone 8, in meters. 3. Vertical Datum - NAVD88 4. Geoid Model used to reduce satellite derived elevations to orthometric heights - NGS Geoid09. LiDAR Processing: 1. Point Cloud data is imported to TerraScan in a Microstation V8 (V) CAD environment on a specified 1500 meter by 1500 meter tiling scheme. 2. Analyze the data for overall completeness and consistency. This is to ensure that there are no voids in the data collection. 3. Inspect for calibration errors in the dataset using the TerraMatch software. This is accomplished by sampling the data collected across all flight lines and classify the individual lines to ground. The software will use the ground-classified lines to compute corrections (Heading, Pitch, Roll, and Scale). 4. Orientation corrections (i.e. Calibration corrections) are then applied (if needed) to the entire dataset. 5. Automatic ground classification is performed using algorithms with customized parameters to best fit the project area. Several areas of varying relief and planimetric features were inspected to verify the final ground surface. 6. AeroMetric, Inc. provided Quality Assurance and Quality Control (QA/QC) data for this project. AeroMetric captured QA/QC points in 'open terrain' land cover category that were used to test the accuracy of the LiDAR ground surface. TerraScan's Output Control Report (OCR) was used to compare the QA/QC data to the LiDAR data. This routine searches the LiDAR dataset by X and Y coordinate, finds the closest LiDAR point and compares the vertical (Z) values to the known data collected in the field. Based on the QA/QC data, a bias adjustment was determined, and the results were applied (if necessary) to the LiDAR data. A final OCR was performed with a resulting RMSE of 10.7 cm for the project. 7. After the LiDAR data is finalized for vertical placement, a macro is run via TerraScan to output a dataset generated on a per swath basis as part of the final deliverables. All points of the swath are reclassified to class 0 during this step. 8. Each tile is reviewed for accuracy and consistency of the macro ground classification. During this phase, MicroStation is used to generate line work representing water bodies and rivers. Separate line work is also placed in instances where overpasses have blocked enough valid ground returns or water gave too few ground returns to reasonably portray the ground surface. A proprietary in-house software program is then run to drape the river line work in a flowing fashion. Contours are generated on the river breaklines to review monotonicity of the draped line work. 9. Once the automatic processing and the testing of LiDAR is complete, AeroMetric meticulously reviews the generated bare-earth surface data to ensure that proper classification was achieved as part of a Quality Control process. 10. Final deliverables are generated and output to a client specified 1500 meter by 1500 meter tiling scheme.

- 2016-03-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received the files in laz format via an FTP online repository. The files contained lidar elevation and intensity measurements. The data were in UTM Zone 8, NAVD88 (orthometric) heights in meters. OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. The data were converted from UTM coordinates to geographic coordinates. 2. The data were converted from NAVD88 (orthometric) heights in meters to GRS80 (ellipsoid) heights in meters using Geoid 09. 3. The LAS data were sorted by latitude and the headers were updated. 4. Erroneous elevations were removed.

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

## **6. Data Documentation**

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

No

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

Missing/invalid information:

- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:****6.3. URL of metadata folder or data catalog, if known:**

<https://www.fisheries.noaa.gov/inport/item/49625>

**6.4. Process for producing and maintaining metadata**

*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: [https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC\\_PD-Data\\_Documentation\\_v1.pdf](https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf)

**7. Data Access**

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

**7.1. Do these data comply with the Data Access directive?**

**7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?**

**7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:**

**7.2. Name of organization of facility providing data access:**

NOAA Office for Coastal Management (NOAA/OCM)

**7.2.1. If data hosting service is needed, please indicate:****7.2.2. URL of data access service, if known:**

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=5021>  
[https://coast.noaa.gov/htdata/lidar1\\_z/geoid12b/data/5021](https://coast.noaa.gov/htdata/lidar1_z/geoid12b/data/5021)

**7.3. Data access methods or services offered:**

This data can be obtained on-line at the following URL:

<https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=5021>

The data set is dynamically generated based on user-specified parameters.;

**7.4. Approximate delay between data collection and dissemination:**

**7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:**

## **8. Data Preservation and Protection**

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

### **8.1. Actual or planned long-term data archive location:**

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

**8.1.1. If World Data Center or Other, specify:**

**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:**

### **8.2. Data storage facility prior to being sent to an archive facility (if any):**

Office for Coastal Management - Charleston, SC

### **8.3. Approximate delay between data collection and submission to an archive facility:**

### **8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

## **9. Additional Line Office or Staff Office Questions**

*Line and Staff Offices may extend this template by inserting additional questions in this section.*